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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,707	01/26/2004	Raymond Wellman	021331-000710US	9283

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EXAMINER

BRUENJES, CHRISTOPHER P

ART UNIT	PAPER NUMBER
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1794

MAIL DATE	DELIVERY MODE
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12/10/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/765,707	WELLMAN ET AL.	
	Examiner	Art Unit	
	Christopher P. Bruenjes	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15 and 27-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15 and 27-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 29, 2007 has been entered.

WITHDRAWN REJECTIONS

2. All previous rejections of record in the Office Action mailed August 30, 2007 have been withdrawn due to Applicant's amendments in the Paper filed October 29, 2007.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 15, 28, 36-39, 41, 44 and 46-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Vliet (USPN 4,099,749) in view of Shea (USPN 5,383,994).

Regarding claims 15 and 36, van Vliet teaches a duct assembly (Figure 1 and col.1, 1.5-16) comprising a slip collar (reference number 2, Figure 1) comprising a tubular outer wall portion, a tubular inner wall portion, an intermediate portion disposed between the tubular outer wall portion and the tubular inner wall portion, a first slot region defined by the tubular outer wall portion and the tubular inner wall portion (reference number 2, Figure 1). The first and second slot regions face away from each other and the slip collar is an integral one-piece structure (reference number 2, Figure 1). A first duct including a first end is inserted into the first slot region (reference number 1, Figure 1). A second duct including a second end is inserted into the second slot region (reference number 1', Figure 1). The first end and second end each have a constant diameter.

Van Vliet teaches that the coupling sleeve is used to connect to air channels of an air circulation or conditioning system, but fails to teach of what material the slip collar is formed. However, Shea teaches that fiberglass reinforced plastics are preferred in the formation of air channel systems (col.1, 1.44-47). One of ordinary skill in the art would have recognized that duct joints and ducts themselves are made completely from fiberglass reinforced plastics because it is well known that fiber reinforced ducts are lighter than metal ducts and are a preferred material for air duct systems, as taught by Shea.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to select a fiberglass reinforced plastic material for the coupling sleeve of van Vliet in order to provide a fire resistant duct assembly that is lighter in weight, as taught by Shea.

Regarding claims 28, 37, 41, and 44, van Vliet fails to teach that the outer wall portion and inner wall portion comprise different polymeric materials. However, Shea teaches that two major problems are faced when using fiberglass reinforced plastic materials and not any metal in duct systems including fire resistance and chemical resistance. Shea goes on to teach that in order to overcome these issues the ducts are formed having an inner wall portion and outer wall portion in the same manner as the van Vliet duct joint assembly. Shea teaches that the matrix used to form the outer wall portion is a phenol resorcinol type fire retardant resin and the inner tubular wall portion is formed of a vinyl ester (col.3, 1.9-15). One of ordinary skill in the art also would have recognized that the ducts as well as the joints require a fire resistant outer portion and chemical resistant inner portion in order to function adequately as a duct assembly, as taught by Shea.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to select a fiberglass reinforced phenol resorcinol material for the outer tubular portion of van Vliet in order to provide a fire resistant outer portion that is lighter in weight, as taught by Shea, and to use vinyl ester as the resin in the fiberglass reinforced material in the inner portion of the duct joint of van Vliet, in order to provide chemical resistance, as taught by Shea. Thus, the slip collar of van Vliet and Shea combined is free of metal.

Regarding claim 38, van Vliet teaches that the coupling sleeve can be used as an end cap in which it would be obvious that the sleeve would contain only one slot region (col.2, l.39-40).

Regarding claim 39, the tubular inner wall portion is shorter than the tubular outer wall portion (reference 3, Figure 4).

Regarding claims 46-47, the slip collar is formed first and after the slip collar is formed the first end of the duct is inserted into the first slot region and the second end of the second duct is inserted into the second slot region (col.1, l.19-33).

Regarding claims 48-51, the claims are written as product by process claims and only the structure taught by the product is given patentable weight. When an article made by a different process is found to be substantially the same, the burden is shifted to the applicant to show an unobvious difference. To show an unobvious difference applicant must provide evidence such as unexpected results provided by forming the article with the different process.

Regarding claim 52, the interior surface of the tubular outer wall portion and the surface of the tubular inner wall surface facing the slot region are smooth (Figure 1).

Regarding claim 53, Shea teaches that the fibers may include graphite, carbon, or ceramic to provide to provide increased strength and fire resistivity (col.5, l.27-29).

Regarding claim 54, the slip collar is curved (Figure 4).

Regarding claims 55 and 56, Shea teaches the cured phenolic resin comprises phenol-aldehyde or resorcinol-aldehyde (col.2, l.16-19).

6. Claims 27, 29-35, and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Vliet in view of Shea as applied to claims 15 and 36 above, and further in view of Williams et al (USPN 5,961,154).

Van Vliet and Shea taken as a whole teach all that is claimed in claims 15 and 36 as shown above, but fails to teach additional connecting elements to further strengthen the connection between the ducts and the coupling device. However, Williams et al teach that slip collars are formed with set screws and/or adhesive compositions applied in the slot regions comprised of novolac or epoxy resin (col.4, l.2-4) of the slip collar to provide additional connection strength between the ducts and the coupling device (reference number 94, Figure 7 and reference number 38, Figure 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to add set screws and/or adhesive composition such as novolac or epoxy resin to the slot regions of the coupling device of van Vliet in order to add additional connection strength between the ducts and coupling device, as taught by Williams et al.

Regarding claims 31-32, van Vliet fails to teach the thickness of the outer wall portion of the coupling sleeve, but Williams et al teaches that thickness within the claimed range of 3/16-inch to about 1-1/2 inches are common in forming coupling sleeves for air ducts (col.7, l.18-24).

7. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over van Vliet in view of Shea as applied to claim 36 above, and further in view of Nishio (USPN 6,045,164).

Van Vliet and Shea teach all that is claimed in claim 36 as presented above, but fail to teach that the tubular inner wall portion comprises a fluoropolymer material. However, Nishio

teaches that fluoropolymers such as polytetrafluoroethylene are superior in resistance to chemicals and heat (col.4, 1.43-53). One of ordinary skill in the art would have recognized that fluoropolymers that are superior in resistance to chemicals and heat would be beneficial in use in forming the chemical resistant portion of a fume duct joint. One of ordinary skill in the art would have also recognized that van Vliet, Shea, and Nishio are analogous insofar as both references are concerned with joints between tubular articles made of resins that require chemical resistance.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to form the tubular inner wall portion of van Vliet so that it includes a fluoropolymer material since Nishio teaches that fluoropolymers are well known in the art of tube joints and connectors to be chemical and heat resistant.

8. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over van Vliet in view of Shea as applied to claim 36 above, and further in view of Narukawa et al (USPN 4,433,020).

Van Vliet and Shea teach all that is claimed in claim 36 as presented above, but fail to teach that the fiberglass reinforced plastic material comprises chopped strand mat. However, Narukawa et al teach that when forming fiberglass reinforced plastics in the formation of exhaust ducts the glass fibers are prepared from chopped strands (col.1, 1.8-12, col.2, 1.55-56, and col.8, 1.25-30 and 55-59). Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to form fiberglass reinforced plastics used in the formation of ducts from chopped strands, as taught by Narukawa et al.

Thus, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to form the fiberglass reinforced slip collar of van Vliet and Shea from chopped strands because they are a common method of forming fiberglass reinforced plastics for use in the formation of ducts, in which the slip collar is used, as taught by Narukawa et al.

Response to Amendment

9. The declaration under 37 CFR 1.132 filed October 29, 2007 is sufficient to overcome the rejection of claims 15, 27-37, 39, 41-44, and 46-51 based upon 35 U.S.C. 103 over Williams et al in view of Shea.

Response to Arguments

10. Applicant's arguments with respect to claims 15 and 27-56 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

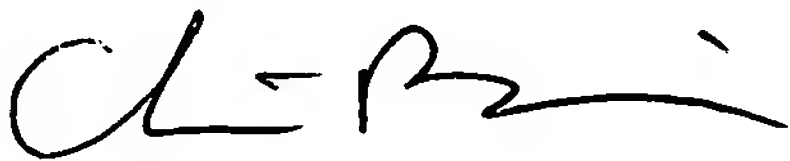
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Bruenjes whose telephone number is 571-272-1489. The examiner can normally be reached on Monday thru Friday from 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on 571-272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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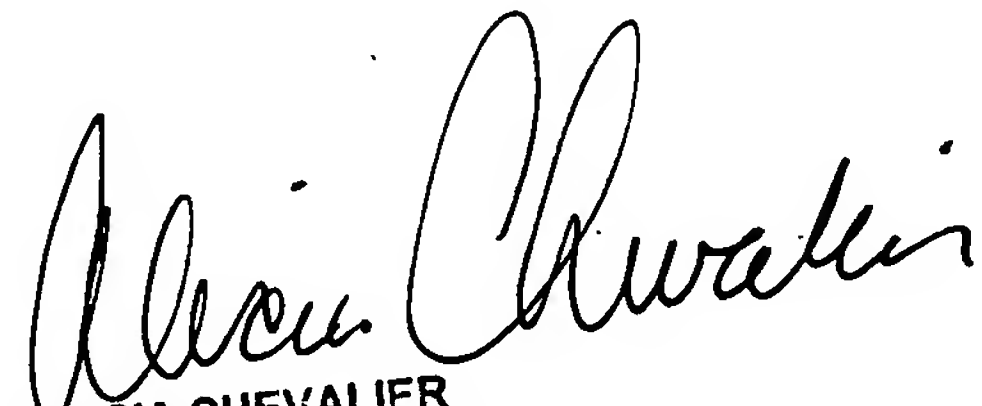
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Christopher P Bruenjes
Examiner
Art Unit 1794

CPB
November 27, 2007



ALICIA CHEVALIER
PRIMARY EXAMINER